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ABSTRACT

In 1979-80, a study was conducted at Dundalk Community College (DCC) to assess the procedures and instruments used to place students in the three options of its developmental education program: Option A (for students with the lowest assessment scores), Option B (for those with low assessment scores), and regular developmental courses. The study involved tracking the students registered in Options A and B, a sample of students from traditional developmental courses, and a random sample of nondevelopmental students. The study report describes the size and selection of the study sample; describes the nationally normed tests, questionnaires, and survey instruments used to place the students and to assess their ability and achievement; describes how the data were analyzed; discusses study limitations; and presents the research questions. The study results are presented with respect to the following research questions: (1) how effective are the assessment instruments; (2) which assessment instruments are most predictive of success; (3) was the Self Assessment Checklist developed by DCC correlated to nationally normed scores; (4) did students and faculty agree on placement decisions; (5 and 6) how successful were students who followed the placement recommendations and those who did not; and (7 and 8) how important are affective skills and student goals with respect to academic success. After conclusions and recommendations are presented, appendices provide statements of policies and procedures, the survey and assessment forms, and explanations of computer programming concerns. (AYC)

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DUNDALK COMMUNITY COLLEGE
DEVELOPMENTAL EDUCATION
RESEARCH PROJECT

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PREFACE

The following report is an analysis of data collected during the 1979-80 academic year for the Developmental Education Research Project at Dundalk Community College. The project, directed by Dave Flumbaum, Coordinator of Developmental Education, represents the work of many people. Mr. Flumbaum was instrumental in providing the major direction of the study. Without the cooperation of the entire developmental faculty, however, the project would have been meaningless. They contributed their ideas and suggestions at the outset of the study, and then filled out countless forms to provide comprehensive data on all aspects of the new option approach.

The support work of Flo Patterson, project secretary, in keeping all the paperwork straight kept the project going throughout the year. Two people were responsible for the mechanics of running the final computer program. Peg Scoggins at Dundalk did the keypunching, while Jim Smith, Computer Center Director at Essex Community College, ironed out problems in running the program.

The observations in the report are those of the consultant, Dorothy Linthicum. These observations and resulting recommendations are intended to be a starting point for discussion, and not the final answer. The concern of the entire college community toward the needs of developmental students has been obvious from the efforts given to this project the past year.

INTRODUCTION

In the Fall of 1979 Dundalk Community College had the unique opportunity to evaluate a new developmental education program design. The college's developmental education program had been successful in helping students reach their goals in the past, but more and more students with complex needs were now at the college's doors.

The developmental needs of the student body range from skill brushups in math to severe reading deficiencies. It was obvious to the developmental faculty that combining students with such diverse needs in the same classroom was detrimental. A system was designed to identify levels of skills and to guide students into the appropriate program. (See Appendix A, p. 3.). In the Fall of 1979, 16 students were enrolled in Option A (students with very low assessment scores); 17 were in Option B (students with low scores); while others with developmental needs were enrolled in the traditional 100-level courses.

The problem identified for the evaluation research project was to determine the effectiveness of the new developmental program and the assessment procedures used for course placement. Because many questions about developmental education are still unanswered, the temptation is to create a research design that is too broad. In order to narrow the focus and to provide the college with the most useful data, two major objectives coming from the statement of the problem were addressed:

-To determine the relationship of the assessment instruments to the future success of students;

-To determine the success of students placed in various instructional options.

In one year, it was not possible to complete either objective. However, some initial conclusions have been drawn, and a model to continue the evaluation process has been developed. This data can be another tool the college uses in making future decisions about the new program and assessment procedures.

Description of the Study

The problem to be addressed in this report was identified at several meetings of the developmental faculty at Dundalk and included in the Policies and Procedures for Developmental Education at Dundalk Community College, approved May, 1979. (See Appendix A, p. 4.) The study, which took place during the academic year 1979-1980, was designed to address the concerns of the faculty at those meetings.

The design of the study called for the tracking of a selected sample of students from the initial assessments through two semesters at the college. (The computer model will allow the college to follow these students an additional two semesters.) Traditional success indicators (grades, etc.), nationally-normed tests, and tools developed for this study were used to evaluate the effectiveness of the new placement procedures for developmental students.

Sample Size and Selection

In addition to tracking the students registered in Options A and B, a sample of students taking the traditional 100-level developmental courses and a random sample of first-time nondevelopmental students were included in the study. The students in the two control groups were used as a point of comparison not only in terms of student success, but also to understand better differences in student characteristics.

In analyzing the data, the students were divided into three main categories: students in Options A and B, students in Option C (regular developmental courses), and nondevelopmental students. There were 33 students in the first group entering in Fall 1979, with 20 additional students entering in Spring 1980. There were a total of 96 students in the Option C sample, including 25 from Math 100, 38 from English 100, and 33 in Reading 100. In addition, 34 students enrolled in Personal Development, some of whom were developmental, acted as a control goup for comparing test scores such as the Nowicki-Strickland opinion survey. Students in the Option C sample and Personal Development control group came from randomly selected classes in the appropriate subject matter. The sample of nondevelopmental students included 53 first-time students enrolled in science, math, English, or social science courses. Each sample group contained students from day and evening classes.

Survey and Testing Instruments

Several tools were developed to assess student ability and to measure student achievement. In addition to the standard assessment instruments used at Dundalk (the Nelson-Denny reading test, the English writing sample, and the math assessment), students were asked to complete a Self Assessment Checklist and an Immediate Student Goals statement. (See Appendix B-1 and B-2.) Developmental students in Options A, B, and C also completed these two instruments at the end of the first semester.

After classes had been in session for three weeks, students and faculty in the selected developmental courses filled out a short evaluation of the selection/placement process. (See Appendix B-3 and B-4.) Both were asked if they agreed with the placement made and if the student would be successful

in completing the course requirements.

The final form to be developed specifically for this project was the Affective Measurement checklist. (See Appendix B-5.) Many of the goals for developmental education at Dundalk deal with affective skills, which are difficult to measure by traditional success indicators. (See Appendix A, p. 1.) Studies[1] have shown, however, that these skills are critical for academic success. Using the goals statement compiled by the college faculty, a checklist was developed to allow instructors to evaluate students in six areas: goal setting, time management, motivation, self confidence, decision making and self exploration. These forms were distributed during the fifth week of classes.

In addition to the tools developed for the study, several nationally normed tests and checklists were used. These include:

- Nelson-Denny (or Nelson) reading tests
- Nowicki-Strickland Internal-External Test (Opinion Survey)
- Tennessee Self-Concept Scale (Total Positive Score)
- Sentence combining test

Records were also kept for attendance and grade averages. Because grading data was not meaningful for students in Options A and B, a Numerical Achievement Score (NAS) was developed to measure student achievement. A four-point scale was used as follows:

0 - Rarely attended class
1 - Attended class infrequently, work inadequate
2 - Attended class regularly, did not work to potential
3 - Reached individual course goals
4 - Received a passing grade (P)

Information about the students, including test scores, attendance averages, and final Numerical Achievement Score (NAS), were collected at the end of each semester on special forms. (See Appendix B-3.) That

data was transferred to individual Student Profile forms which also had information from the Records Office on age, sex, race, and high school graduation. (See Appendix B-8.) Data on nondevelopmental students, which was collected primarily to compare retention, persistence, and demographic information, came only from student records.

During the second semester, information from the Records Office was used as the primary source of data for students in Option C and the non-developmental group. Instructors of students from the Fall Option A and B classes were asked to complete Affective Measurement checklists, record attendance averages, and assign a NAS when appropriate.

Analysis of Data

A computer program was designed to analyze the data gathered from the different sources. Because much of the data were nominal, only descriptive and comparative statistics were used. The data does not support the use of inferential statistics such as multiple regression. The result is a description of the various student groups and comparisons between groups on certain variables. The appropriate statistics were selected according to the research question under study. Additional information about the statistical analysis is available in the Results section of this report; Appendix C describes the computer program.

Limitations

A major limitation of the study was the use of untested survey instruments. In the Results section of this report, this problem will be addressed as the scores from these instruments are compared to more traditional ones.

Another difficulty is standardizing the scores given by many different faculty. For example, some instructors gave almost all of their students a perfect affective rating, while others appeared to be more discriminating in their scoring. The problem could lie in the design of the instrument, or in the attitudes of individual faculty towards the study. The amount of paperwork required during the study also might have reduced the effectiveness of certain instruments. For the most part, however, the faculty were receptive to the study and willing to take on the additional commitment it required.

A more serious limitation lies in the difficulty of measuring learning with numbers and test scores. The data in this report are intended to be used only as one of several tools in making decisions about students. The achievement of many of the goals developed by the faculty may be more vital to a student though that achievement cannot be ranked on any numerical scale.

Research Questions

The following questions came from the statement of the problem and the objectives of the study.

1. How effective are the assessment instruments used at Dundalk Community College?
2. Which assessment instruments were most predictive of success?
3. Was the Self Assessment Checklist created by the college correlated to nationally normed scores?
4. Did students and faculty agree with placement decisions?
5. How successful were students who took placement recommendations?
6. How important are affective skills in achieving academic success?
7. How successful were students who did not take placement recommendations for Options A & B?
8. What effects do student goals have on academic success?

RESULTS

In this section, answers to the research questions outlined above will be given primarily from a statistical standpoint. The qualitative aspects of the questions will not be addressed. In the discussion of each question, however, inferences from the statistical analysis will be made. General observations about the overall program will be made in the Conclusion.

* * * * * * * * * *

Question 1: How effective are the placement tools used at Dundalk Community College?

The primary assessment tools used at the college include the Nelson-Denny reading test, an English writing sample, a math assessment, and any other data a student provides, such as a high school transcript. Students were also asked the last two semesters to complete a Self Assessment Checklist. A counselor uses the assessment information along with an interview with the student to determine a placement recommendation. Criteria used by the counselor in making recommendations are described in Appendix A, page 3.

One way to test the effectiveness of an assessment test is to compare the scores with different success measures. For example, the higher the score on a Nelson-Denny test, the greater the success expected. A correlation statistic, Pearson's r, was used to determine the strengths of these relationships.

Two variables, the total Nelson-Denny (or Nelson) score and the Self Assessment, were compared with four success measures: grade average, affective measurement rate (AMR), attendance average, and attrition (number of semesters attending). Table 1 summarizes the results of student in Options A and B.

The Self Assessment checklist had a statistically significant relationship with three of the four success measures: The AMR, the attendance average and

the Numerical Achievement Score Average (NASA) for the first semester. The Nelson reading test was significantly related to the NASA for students in Options A and B. Until data is collected for all four semesters, a significant relationship with the attrition variable is unlikely.

Table 1: Correlations of Assessment Tools with Success Measures of Students in Options A & B

	AMR	NASA	Attendance	Attrition
Nelson	.1486	.2603*	.0407	-.1962
Self Assessment	-.3115*	-.2717*	-.2591*	-.2463
HS GPA	-.0140	.0102	-.0340	-.0201

*Significant at the .05 level

Table 2 shows the comparison of the two assessment tools with attrition and persistence (the ratio of hours attempted to hours completed) for students in Options A, B and C. The Self Assessment was found to be correlated with the course completion ratio.

Table 2: Correlations of Assessment Tools with Success Measures of Students in Options A, B and C

	Attrition	Persistence
Nelson-Denny	-.0249	.1216
Self Assessment	-.1400	-.1997*

*Significant at the .05 level

All of the reading score correlations in Table 1 except one are positive. That means higher reading scores are more often associated with higher success scores. (A perfect correlation would be 1.0000.) However, the numbers for the Self Assessment in both Tables are all negative, indicating that as assessment scores increase, success scores decrease. This seems to be an anomaly. One explanation could be the unrealistic expectations and self assessments of

developmental students, a problem often noted by developmental instructors. The statistics indicate that students with a more realistic view of their strengths and weaknesses (indicated by a lower score on the Self Assessment Checklist) are likely to have greater success.

* * * * * * * * * * *

Question 2: Which assessment instruments were most predictive?

Statistically, the tool with the most significant relationships to success is the Self Assessment Checklist. However, the negative relationship with the success measures of developmental students makes its use as a predictive tool doubtful. It could be used in conjunction with the other tests to help developmental students come to terms with their skill levels and adjust expectations accordingly. On the other hand, the Self Assessment scores had positive relationships with the success measures of nondevelopmental students. A significant relationship at the .05 level was found between the self assessment and cumulative grade point averages. (Table 3) This indicates that nondevelopmental students may have a more realistic view of their abilities.

In another instance, different statistical results also were found for developmental and nondevelopmental students. A traditional placement tool, the high school grade average, was not related to success for developmental students, but was highly correlated for nondevelopmental students. (See Tables 1 and 3)

Table 3: Correlations of Assessment Tools with Grade Averages of Option C and Nondevelopmental Students

	CUM GPA	SEMESTER 1 GPA
HS GPA	.2582**	.2935**
Nelson-Denny	.0693	.1377*
Self Assessment	.1981*	.0743

*Significant at .05
**Significant at .001

The opposite results of these tools point to the reasons many community colleges have turned to a multi-faceted assessment program. The traditional placement tools are adequate for traditional college students. The demographics for the nondevelopmental control group showed a median age of 18, predominately white composition, with 17 percent more women than men. More than half were reading at grade 11.6 or above. This type of student, however, is no longer the typical student at most community colleges.

Dundalk has recognized this in setting up its assessment program. Based on this study, the Nelson-Denny reading test and the math assessment seem to be the best predictors. The Nelson-Denny (or the Nelson) scores are correlated to academic success (grades) for both developmental and non-developmental students. It seems logical that ability to read and comprehend should be an indicator of success in college. Because the English writing sample is based on subjective evaluation, it could not be used in statistical analysis. However, there are some indications that the Nelson-Denny scores could be substituted for the English test. Developmental students in English tended to have similar reading scores as students in Reading 100. The average (mean) Nelson-Denny total for English students was 9.0 (median 8.9), while the average for Reading 100 students was 9.2 (median 9.1).

The math assessment test was useful in identifying students with specific math skill needs. Math 100 was the only developmental course for many of the students enrolled in it. However, there were also indications that students with low reading scores are not likely to be successful in math. This could be due to the individualized nature of the course or the comprehension level of the student. The average Nelson-Denny for students successful in completing at least one math unit during the semester was over 11.0.

* * * * * * * * * * *

Question 3: Was the Self Assessment Checklist created by the college correlated to nationally normed scores?

The Self Assessment Checklist asks students to evaluate their skill level, to compare their ability to their classmates, to indicate their desire to succeed in college, among other things. (See Appendix B-1.) Each question was scored on a three point scale, with a total of 54 possible. The results of correlation tests between the checklist and three nationally normed tests are shown in Table 4.

The checklist was highly correlated to the Nelson-Denny scores of the students. Since almost all of the sample were developmental students, the negative relationship is not surprising in light of earlier findings. (See Question 2). The checklist was also found to have a positive correlation with the Tennessee Total P score. The strength of this correlation suggests that the college checklist is as effective in measuring self concepts as the nationally normed test. No correlations were found between the checklist and Nowicki-Strickland External-Internal Opinion Survey.

Table 4: Correlations of Nationally Normed Placement Tests and the Self Assessment Checklist

	Nelson-Denny	Nowicki	Tennessee P
Self Assessment	-.4348**	-.0894	.2658*

*Significant at .05
**Significant at .001

One weakness uncovered by the statistical analysis of the Self Assessment Checklist was the lack of correlation in the pretests given at entry and the posttests given at the end of the first semester. Strong relationships were found between pre- and posttest scores of both the Nowicki-Strickland and Tennessee Self Concept instruments. A correlation between the self assessment pretest scores and the numerical difference between the pre- and posttests also

indicate that students with the higher scores were less likely to change their self assessment significantly. Since these were the students who also were less likely to succeed, there is a mild indication that they maintained an unrealistic self evaluation throughout the semester.

Table 5 shows comparisons of self assessment scores among developmental and nondevelopmental students. There is no significant difference in the scores of students in the developmental options, but nondevelopmental students consistently gave themselves higher ratings.

Table 5: Comparisons of Self Assessment Pretest Scores Among Developmental and Nondevelopmental Students

	Mean	Median	SD
Option A & B	44.9	45.6	4.768
Option C	45.9	45.8	3.085
Nondevelopmental	48.9	50.0	3.378

* * * * * * * * * *

Question 4: Did students and faculty agree with placement decisions?

After the third week of classes, student and instructor surveys were distributed in classes of Option A/B students and selected Option C students. Students were asked if they agreed with placement decisions and if they thought they would successfully complete the course. (See Appendix B-3) Faculty were asked similar questions in addition to making an evaluation of student motivation. (See Appendix B-4) Overall the return rate for both of these forms was over 80 percent.

Table 6 indicates that for the most part the instructors in each course felt the placement decisions were "about right." Out of the 22 students whose ability was ranked by instructors as "too high for this group," only 50 percent successfully completed the course. This would indicate that factors other than ability may have played a part in the students' failure to pass the course. These other factors may or may not have been detected by the counselor during program planning.

Table 6: Instructor Evaluation of Academic Ability by Course and Level

	Too High for Group	About Right	Too Low for Group	Total N
Reading	%	%	%	
Option A (Fall 79)	14.3	78.6	7.1	14
Option B (Fall 79)	6.3	81.2	12.5	16
Option A/B(Sp. 80)	29.4	70.6	0	17
Option C (79 & 80)	15.6	84.4	0	32
English				
Option B (Fall 79)	6.3	81.2	12.5	16
Option A/B(Sp. 80)	10.0	80.0	10.0	10
Option C (79 & 80)	14.3	77.1	8.6	35
Math				
Option B (Fall 79)	6.3	93.7	0	16
Option C (Fall 79)	4.8	95.2	0	21

Table 7: Student Evaluation of Course Difficulty by Level

	Too Easy	About Right	Too Difficult	Total N
Reading	%	%	%	
Option A (Fall 79)	14.3	85.7	0	14
Option B (Fall 79)	7.7	92.3	0	13
Option A/B (Sp.80)	11.1	88.9	0	9
Option C (79 & 80)	7.1	85.8	7.1	28
English				
Option B (Fall 79)	0	92.3	7.7	13
Option C (79 & 80)	0	100.0	0	28
Math				
Option B (Fall 79)	16.7	83.3	0	12
Option C (Fall 79)	0	100.0	0	20

Students also can opt to enroll in developmental courses against the recommendations of counselors and instructors. Most of the five students in Option C Reading whose abilities were judged to be too high for the group (their average reading score was 13.0) remained in the course even when encouraged to leave. Of the nine students whose abilities were judged to be too low for the group, only one (in English) successfully completed the course.

Students also seemed to agree with placement decisions. (See Table 7.) The majority felt that the course difficulty in comparison to their ability was "about right." Of the eight who indicated the coursework was too easy,

only three (38%) went on to successfully complete the course. Of the three students who felt the work was too difficult, one completed the course. Students and instructors in the middle ranges often were in agreement, but less often in agreement on the extremes. Only two of the 17 students the instructors rated as having abilities too high for the group agreed with their teachers. None of the students found by the instructors to have less ability than the group expressed similar answers.

Most students (90 percent) in all three courses indicated on the student survey in Spring 1980 that they could not have handled a more difficult course. This would indicate that students for the most part agree with the college in its placement recommendations and that they accept their need for developmental coursework. (This question was added to the Spring student survey; data is not available for Fall 1979 students.)

In additon to assessing skills level in conjunction with placement, instructors evaluated motivation and both students and instructors predicted the likelihood of success. Table 8 shows comparisons of these evaluations with numerical achievement scores (NAS) using the Chi Square statistic. (The larger the Chi Square, the greater the relationship between the variables. Significance at .01 means that there is a one percent chance that the statistical correlation found is due to error.)

In English, no correlation between the instructors' assessment of students' skills and the final NAS was found. However, there was a strong correlation (significant at .01) between the instructors' judgment about the students' likelihood to pass the course and the final NAS. Students were less likely to predict their successful completion of the course,

Table 8: Comparisons of Instructor and Student Evaluation of Student Ability to Succeed with Numerical Achievement Scores (Chi Square)

Course	Instructor Evaluation: Student Motivation	Instructor Evaluation: Likelihood of Success	Student Evaluation of Success
English	35.493**	14.261**	4.363
Math	8.427	5.824*	1.481
Reading	NA	9.323**	2.138

*Significant at .05
**Significant at .01

but that could be due to an unwillingness to predict failure to an instructor. The instructors' assessment of student motivation was also highly correlated to the final NAS.

In Math 100, the instructors' assessment of student motivation was not significantly related to success in the course, but their judgment about the students' likelihood of success was significantly related to completion of math units. Again the students did not accurately predict their potential to succeed.

Reading instructors were also much better able to predict success than their students. A significant Chi Square was found for instructors, while no correlation between student assessment and later success was indicated.

* * * * * * * * * * *

Question 5: How successful were students who accepted placement recommendations?

Many of the successes of developmental students cannot be defined by numbers or statistics. This is especially true of students in Options A and B who were told that the likelihood of completing any courses was small. Achieving personal growth or other goals can be as important as passing grades on a college transcript.

There are ways, however, to look at the academic achievement of developmental students. For example, as earlier described, a numerical

achievement score (NAS) measured individual success on a scale of 0 to 4. Comparing the success of one group against another can also be useful. To answer the question, the success of students in Options A and B will be compared with those in Option C (and a group of regular PD students). In the first section, comparisons of demographic and academic characteristics will be described. The second section will compare NAS, attendance and effective measurement rates of the two groups.

Demographic Characteristics

In addition to the two developmental groups, a control group of non-developmental students has been included as a basis of comparison (Table 9) Differences among the groups by sex are negligible. In all three instances,

Table 9: Demographic Characteristics of Developmental and Nondevelopmental Students

A. Sex

	Male		Female	
	#	%	#	%
Options A & B	25	47.2	28	52.8
Option C	47	49.0	49	51.0
Nondevelopmental	22	41.5	31	58.5

B. Race

	White		Other	
	#	%	#	%
Options A & B	26	49.1	27	50.9
Option C	77	81.1	18	18.9
Nondevelopmental	49	92.5	4	7.5

C. Age

	Mean	Median	Range
Options A & B	25.2	23.5	17-63
Option C	24.8	23.6	17-65
Nondevelopmental	21.0	18.5	17-50

there were more women than men. Comparisons of race, however, showed substantial differences between developmental students and nondevelopmental students (Table 9B). Minorities were disproportionately represented in

Options A and B to a great degree. This result is similar to the findings of a 1978 statewide study of developmental programs at eight community colleges.[2] (A discussion of this issue and its implications can be found in the report from that study available from the Maryland State Board for Community Colleges). Comparisons of average ages show a much younger nondevelopmental group as compared to the two developmental groups. The median age for students in the Maryland study (who entered in the Fall of 1976) was 18.7, while nondevelopmental students average age was 18.5. This may indicate that although there is little change in the traditional, nondevelopmental student, the developmental student population is undergoing much change. As colleges open their doors to more people, programs may have to be adjusted to meet the new needs of this new constituency. Programs and course offerings may need to be adjusted for older and minority students.

Academic Characteristics

Several different academic characteristics were selected to compare developmental and nondevelopmental students. Two indicators used in assessing students' skills, the Nelson-Denny and the math assessment quiz, are included along with attrition rates and course completion ratios.

Table 10A shows reading score intervals for Options A/B, Option C and nondevelopmental students. Because the reading scores are used in student placement, the distribution of scores is not surprising. Table 10B separates reading scores by placement and course type. The only number that seems uncharacteristic is the score for Math 100 students. One explanation is the number of students in this group who may have no other developmental needs other than math. It may also indicate that students with other developmental needs may avoid taking math until other basic skills are

Table 10: Academic Characteristics of Developmental and Nondevelopmental Students

A. Reading Score Intervals (Nelson-Denny Total)

	Less than 7.0		7.1 - 9.0		9.1 - 10.0		10.1-11.5		11.6 & above	
	#	%	#	%	#	%	#	%	#	%
Options A & B*	16	39.0	20	48.8	4	9.8	1	2.4	0	0
Option C	11	13.4	24	29.3	17	20.7	15	18.3	15	18.3
Nondevelop-mental	-	-	4	9.1	8	18.2	10	22.7	22	50.0

stronger. (This issue will be discussed in the following section comparing student success in math.)

B. Initial Reading Score Averages (Nelson-Denny Total)

	N	Mean	Median
Fall 79			
Option A*	16	6.5	6.0
Option B	17	7.7	8.4
Option C	82	9.6	9.4
Rdg. 100	33	9.2	9.1
Eng. 100	32	9.0	8.9
Math 100	17	11.4	11.0
Nondevelopmental	44	11.5	11.6
Spring 80			
Option A/B*	20	7.1	7.2

*Nelson

C. Math Placement Scores

	0		1		2		3		4 and above	
	#	%	#	%	#	%	#	%	#	%
Options A & B	31	75.6	6	14.6	2	4.9	-	-	2	4.9
Option C	29	46.8	8	12.9	12	19.4	4	6.5	9	14.5
Nondevelopmental	7	17.1	10	24.4	5	12.2	7	17.1	12	29.2

The comparison of attrition rates among the different groups had several surprising outcomes. Most notably is the high return rate of developmental students in Option A. Even though few actually completed any coursework in the fall, almost 70 percent came back for the spring semester.

D. Attrition Rates (Fall 79 Students Only)

	N	1 semester #	1 semester %	2 semesters #	2 semesters %
Option A	16	5	31.2	11	68.8
Option B	17	13	76.5	4	23.5
Option C	60	25	41.7	35	58.3
Nondevelopmental	53	17	32.1	36	67.9

E. Course Completion Ratios

	0 - 25% #	0 - 25% %	25 - 89% #	25 - 89% %	90 - 100% #	90 - 100% %
Option A	17	47.2	17	42.2	2	5.6
Option B	11	64.7	6	35.3	0	0
Option C	34	35.4	41	42.7	21	21.9
Nondevelopmental	8	15.1	20	37.7	25	47.2

This would indicate that the low teacher-student ratio and the new placement procedures worked well in the area of student retention. Students in Option B, on the other hand, were much less likely to return after one semester. (Less than 25 percent enrolled for Spring 1980.) This may indicate that the courseload, while limited to 12 hours, was too demanding and discouraging for many of the students. Out of the total in that group, for example, only one completed any math units. The data on attrition seems to support the adjustment made in the placement procedures for Spring 1980. These changes combined Options A and B, and limited the course-work to nine hours.

Course completion ratios used in Table 10E were computed by dividing the number of hours completed by the number attempted. Data from both the fall and spring semesters was included, but withdrawals were not included in the equation. The results for Option A and B students were expected because of the level of skills of the students upon entering the courses. It is interesting to note, however, that Option A students were more likely

to complete courses they attempted than Option B students. This also would support the decision to combine Options A and B and limiting course hours. The results also show that students in either of the options are able to successfully complete some of the coursework. (The relationship between type of student and course completion is significant at .01.)

Success Comparisons

English

English comparisons were made between students in Option B during Fall 1979 and Option A/B during Spring 1980 to students taking the regular 100 English course in both semesters. (Option C) In comparing the NAS averages of the two groups, (Table 11) a significant Chi Square was found, indicating that Option C students are more likely to do better. Part of this was due to the number of Option C students completing the course. Because students in Option A/B were not expected to complete the course, it is reasonable to combine the third and fourth categories. Statistically, there is still a significant difference, but the spread between the two groups is much smaller.

Table 11: English Numerical Achievement Scores of Options B and C Students (%)

	0 Did not attend	1 Poor effort	2 Fair effort	3 Good effort	4 Passed
Option A/B	11.8%	41.2%	17.6%	29.4%	0%
Option C	7.9	21.1	18.4	5.3	47.4

Chi Square: 15.376 - Sig. .001

No statistically significant difference was found in the affective measurement rates of the two groups, even though the percentages show obvious discrepancies. (Table 12. Affective rates range from 1 to 3, with 3 indicating the highest achievement.) This is due in part to the small range of the

data, the size of the table, and the Chi Square statistic. The raw data, however, suggests that the Option A/B students have greater affective skill needs, and that these skills may have affected the NAS outcome. (Comparisons in English of attendance averages was not possible because of lack of data.)

Table 12: English Affective Measurement Rates of Options B and C Students

	0 - 2.5	2.6 - 3.0
Option A/B	71.4%	28.6%
Option C	42.9	57.1

Chi Square: 2.223 (Not sig.)

Math

Math comparisons were made for Fall 1979 only since no Option A/B students were enrolled in math during the Spring. Among Option B students, only one of the 17 completed any units of math during the first semester. In the regular 100 classes, four out of 25 completed three units of math; an additional 12 completed 2; while one student completed one unit. Almost 70 percent completed at least one unit during the semester. (Table 13)

Table 13: Number of Math Units Completed By Options B and C Students

	0	1	2	3
Option B	93.7%	0%	0%	6.3%
Option C	32.0	4.0	48.0	16.0%

There was very little difference in the affective measurement rates between the two groups in math. (Table 14) A Chi Square of .011 indicates that the groups were statistically very similar. However, the difference in the attendance rates was found to be significant at the .05 level. (Table 15) Poor attendance could have been a factor in the lack of success of the Option B students.

Table 14: Math Affective Measurement Rates of Options B and C Students

	0 - 2.5	2.6 - 3.0
Option B	46.2%	53.8%
Option C	38.1	61.9

Chi Square .011 (Not sig.)

Table 15: Math Attendance Averages of Options B and C Students

	0 - 50%	51 - 85%	86 - 100%
Option B	43.7%	50.0%	6.3%
Option C	24.0	36.0	40.0

Chi Square 5.806 (Sig. .05)

Reading

Comparisons in reading are similar to those in English. When comparing Option A/B students with Option C students on a five-point NAS scale, a statistically significant difference is found in the achievement scores of the two groups. However, when the last two categories are combined, no statistical difference is noted, indicating that the Option A/B students were as successful as Option C students in meeting their individual course goals. (Table 16)

Table 16: Reading Numerical Achievement Scores of Developmental Students

	Did not attend 0	Poor effort 1	Fair effort 2	Good effort 3	Passed 4
Options A&B	26.4%	15.1%	30.2%	15.1%	13.2%
Option C	27.3	15.2	21.2	6.1	30.3

Chi Square 5.237 (Sig. .05)

Differences even in the raw data of the affective measurement rates of the two groups was negligible. This would indicate that students in Option C reading courses have similar affective skills to students in Option A/B. (Table 17)

Table 17: Reading Affective Measurement Scores of Developmental Students

	0 - 1.8	1.9 - 2.7	2.8 - 3.0
Options A&B	15.2%	23.9%	60.9%
Option C	12.5	28.1	59.4

Chi Square .236 (Not sig.)

Differences in attendance averages were also not significant. (Table 18) Better attendance could have been a factor in the higher NAS averages of reading students as compared to English.

Table 18: Reading Attendance Averages of Developmental Students

	0 - 20%	21 - 75%	76 - 100%
Options A&B	18.2%	38.6%	43.2%
Option C	24.2	39.4	36.4

Chi Square .554 (Not sig.)

Personal Development (PD)

Students in the nondevelopmental Personal Development (PD) control group, some of whom were also enrolled in developmental courses, tended to be more successful in completing PD than Option A/B students. The difference is statistically significant even when the last two categories (NAS 3 and 4) are combined. (See Table 19) However, it is important that over 40 percent of the Option A/B students successfully completed the course requirements in one semester.

Similar to experiences in the other subject areas, no significant differences in affective skills were detected between the two groups. (See Table 20) In comparing the raw data, Option A/B students actually had higher affective measurement rates than students in the control group.

Table 19: PD Numerical Achievement Scores of Developmental and Control Group Students

	0 Did not attend	1 Poor effort	2 Fair effort	3 Good effort	4 Passed
Options A&B	17.1%	17.1%	14.6%	9.8%	41.5%
Reg. PD	12.1	6.1	6.1	9.1	66.7

Chi Square 5.581 (Sig. .01)

Table 20: PD Affective Measurement Rates of Developmental and Control Group Students

	0 - 2.7	2.8 - 3.0
Options A&B	41.4%	58.6%
Reg. PD	48.0	52.0

Chi Square .04562 (Not sig.)

Affective skill levels in the PD course may be a factor in the high completion rate for A/B students.

Students in the control group, however, had a much stronger tendency to attend class regularly than students in Options A/B. More than a fourth of the A/B students missed at least half of the class sessions, while less than 5 percent of the control group had similar attendance averages. (See Table 21.) These averages are directly related to the NAS averages.

Table 21: PD Attendance Averages of Developmental and Control Group Students

	0 - 40%	41 - 88%	89 - 100%
Options A&B	22.9%	57.1%	20.0%
Reg. PD	3.7	40.7	55.6

Chi Square 10.10237 (Sig. .01)

Comparisons over Two Semesters

Students in Options A and B from the Fall 1979 group who returned the following semester maintained similar affective measurement rates and attendance

averages. Tables 22 and 23 show comparisons between the two success scores for the two semesters

Table 22: Comparison of Attendance Averages of Option A/B Students Over Two Semesters

	Attendance Average			
	0 - 20%	21 - 70%	71 - 79%	80 - 100%
Semester 1	13.3%	26.7%	24.4%	35.6%
Semester 2	7.1	42.9	21.4	28.6

Chi Square 1.457 (Not sig.)

Table 23: Comparison of Affective Skill Rates of Option A/B Students Over Two Semesters

	AMR		
	0 - 2.1	2.2 - 2.8	2.9 - 3.0
Semester 1	21.3%	37.8%	44.4%
Semester 2	28.6	42.9	28.6

Chi Square .944 (Not sig.)

The raw data show that returning students had lower scores in both areas the second semester. The lower rates could be a result of decreased supervision and follow-up as compared to the first semester.

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Question 6: How important are affective skills in achieving academic success?

This is perhaps the most difficult research question because of the inability to measure affective skills quantitatively. Most instruments devised have serious problems because of reliance on evaluators' judgments, resulting in discrepancies caused by different criteria used by different people. For example, reading instructors gave a wider range and more diverse affective measurement ratings than math instructors for the same

students. This could be due to different student motivation and ability in the two courses, or, more likely, the result of differences in the way the instructors evaluated the students.

Even though most measures are imperfect, there are still compelling reasons to attempt comparisons of affective skills and academic success. Most educators would agree that affective skills are important pre-requisites to learning. The discussion below will compare several indicators of affective skills with success measures.

Basically, two variables were used as affective skill indicators. The affective measurement rate (AMR) has a possible value of 0 to 3.0. (See earlier discussion in introduction about the instrument; also see Appendix B-5.) Scores closer to 3 indicate a higher affective skill level. Attendance averages are also used to measure affective skills in time management and commitment.

Several other indicators also deserve mention. The Self Assessment Checklist (see earlier discussion) along with the Tennessee Self Concept Scale and the Nowicki-Strickland Internal-External test measure self esteem which is related to affective skills. Neither of the nationally normed tests, Tennessee Total P Score or Nowicki-Strickland, were found to be related to success measures, such as NAS averages and attrition. As described earlier, the Self Assessment Checklist had negative correlations with NAS and attendance averages and affective measurement rates for developmental students. (See Table 24.) The Tennessee Total P score was found to be significantly related to NAS averages in Personal Development. This suggests that a student's self esteem could have been a factor in his ability to complete the course requirements.

In comparing AMR and attendance with success measures, significant correlations were found between AMR and attrition, and between attendance and NAS averages. This means that the higher the students' AMR, the more likely they are to return the following semester. The relationship between attendance and NAS averages is not too surprising since attendance is usually a prerequisite for course success. The lack of relationship between AMR and NAS averages could be due to weaknesses in the AMR instrument. The data as it stands does not link strength in the affective skills as reflected in the AMR score with grade equivalents.

Table 24: Correlations of Affective Measures with Success Indicators for Option A/B Students

	NASA	Attendance	Attrition
AMR	.1680	-.2159	.2403*
Attendance	.3125**	--	-.1203
Self Assessment	-.2717*	-.2591*	-.2463

*Significant at .05
**Significant at .01

Attendance and AMR was also tested for correlations with success by subject matter. Table 25 shows a comparison of AMR with NAS averages in English. The two were found to be highly related, indicating the higher the English AMR, the higher the English NAS. (Option A, B and C students were included in the comparison.)

Table 25: Comparison of Affective Skills with English Numerical Scores

AMR	0 Did not attend	1 Poor effort	2 Fair effort	3 Good effort	4 Passed
0 - 2.5	4.0%	44.0%	28.0%	12.0%	12.0%
2.6 - 3.0	4.2	8.3	12.5	16.7	58.3

Chi Square 15.07714 (Sig. .01)

AMR scores in math, however, were not found to be correlated with number of units completed. (See Table 26; only Option C students were

included because only one Option B student completed any math units.) Affective skills may not be as important as other skills in achieving success in a subject such as math. Note, for example, that a higher percentage of students with lower AMR scores completed all three units of math.

Attendance, on the other hand, was strongly related to success in math. (See Table 27) Only nine percent of students attending at least 86 percent of the classes were unable to complete any units of math.

Table 26: Comparison of Affective Skills with Math Units Completed by Option C Students

	Units Completed			
AMR	0	1	2	3
0 - 2.7	20.0%	20.0%	40.0%	20.0%
2.8 - 3.0	18.7	18.7	50.0	12.5

Chi Square .36346 (Not sig.)

Table 27: Comparison of Attendance Averages with Math Units Completed by Option C Students

	Units Completed			
Attendance	0	1	2	3
0 - 50%	45.5%	54.5%	0%	0%
51 - 85	18.2	18.2	54.5	9.1
86 - 100	9.1	9.1	54.5	27.3

Chi Square 15.332 (Sig. .01)

The findings in reading were similar to those in math. (See Tables 28 and 29) Reading AMR scores were not found to be significantly related to NAS averages using Chi Square. However, the Cramer's V shows some directional relationship indicating that those with higher AMR scores were more likely to have a higher NAS in reading. Those with higher AMR scores were also much less likely to receive a low NAS.

Table 28: Comparison of Affective Skills with Reading Numerical Scores

	NAS Intervals		
AMR	0	1 - 3	4
0 - 1.8	36.4%	45.5%	18.2%
1.9 - 2.7	20.0	75.0	5.0
2.8 - 3.0	19.1	53.2	27.7

Chi Square 6.287 (Not sig.)

Table 29: Comparison of Attendance with Reading Numerical Scores

	NAS Scores				
Attendance	0	1	2	3	4
0 - 20%	87.5%	6.3%	6.3%	0%	0%
21 - 75	10.0	40.0	36.7	6.7	6.7
76 - 100	0	0	29.0	25.8	45.2

Chi Square 64.123 (Sig. .001)

Attendance again was found to be highly correlated to reading success.

The same results were found for the Personal Development courses. (See Tables 30 & 31.) The relationship of the Tennessee Total P Score with PD NAS averages described earlier indicates that self concept is more important for success in PD than other affective measures used in the AMR instrument.

Table 30: Comparison of Affective Skills with PD Numerical Scores

	NAS Scores				
AMR	0	1	2	3	4
0 - 2.7	16.7%	16.7%	8.3%	8.3%	50.0%
2.8 - 3.0	3.3	10.0	3.3	16.7	66.7

Chi Square 3.232 (Not Sig.)

Table 31: Comparison of Attendance with PD Numerical Scores

Attendance	NAS Scores 0	1	2	3	4
1 - 40%	66.7%	33.3%	0	0	0
41 - 88	3.2%	12.9	25.8	9.7	48.4
89 - 100	0	0	4.5	9.1	86.4

Chi Square 42.461 (Sig. .001)

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Question 7: How successful were student who did not take placement recommendations for Options A and B?

A total of 17 students were identified who chose not to enter Option A/B even though recommended by a counselor to do so. Overall, these students were no less successful than students who did enter Options A/B. However, differences were noted between the two students groups in several areas.

For example, this group was composed primarily of women, over 80 percent as compared to about 50 percent in the A/B group. These students also were less likely to be a minority race. Age differences were not significant.

Table 32: Demographic Characteristics of Students Rejecting Option A/B Placement Recommendations

	N	%
Sex		
Male	3	17.6
Female	14	82.4
Race		
White	11	64.7
Other	5	29.4
Age		
15 - 19	6	35.3
20 - 29	8	47.1
30+	3	17.6

Similarities were also found between average Nelson-Denny scores between students rejecting placement recommendations and Option B students (See Table 33) Average self assessment scores were lower than any of the groups at 42.1. The negative correlation of self assessment scores with

success measures of developmental students indicate these students are more realistic about their skill level and motivation, even though they opted not to enter the optional developmental courses.

Table 33: Academic Characteristics of Students Rejecting Option A/B Placement Recommendations

	N	%
Course Completion		
0 - 25%	7	41.2
29 - 89%	8	47.1
90 - 100%	2	11.8
GPA (1st semester)		
0	12	70.6
.01 - 2.99	2	11.8
3.0 - 4.0	3	17.6
ND Intervals		
0 - 7.0	4	25.0
7.1 - 9.0	9	56.3
9.1 - 10.0	2	12.5
10.1+	1	6.3
Self Assessment		
33 - 40	3	42.9
44 - 48	4	57.1
Attrition		
Attended 1 semester	8	47.1
Attended 2 semesters	9	52.9

The likelihood of returning after one semester was not as strong for these students as students in Option A, but more did return than those from Option B. Part of this could be related to the number of hours students not in Option A/B attempted. The average student enrolled for 8 hours, only 2 more than students in Option A, but 4 less than Option B students. In addition, the students not in either option had similar course completion ratios to students in Option A and were more successful in completing courses than their counterparts in Option B.

At this time, significant differences between students who did or did not take placement recommendations are not obvious. However, the small size of the control sample and the lack of more detailed information about

the students not in either option mean that only descriptive comparisons can be made. However, there is enough evidence to indicate that students with low assessment scores can achieve success without intensive developmental support.

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Question 8: What effects do students goals have on academic success?

During the assessment period, students were asked to complete a student goal survey to indicate their reasons for coming to Dundalk Community College. (See Appendix B-2) The goals were then divided into three categories, Academic, Career, and Personal. The scoring mechanism took into account the variable number of goals in each category in determining the major direction the student appeared to be heading.

The goals of developmental students in Options A/B and those in the regular PD classes were significantly different. Students in Option A were much more likely to have academic goals while students in the nondevelopmental PD classes tended to have more personal goals. (Table 34) This could be a result of the placement procedures. The PD course is a regular component

Table 34: Goals of Students in Options A/B and Regular PD Before and After First Semester

	Goal Pretest		
Student Group	Academic	Career	Personal
Option A	48.3%	24.1%	27.6%
Option B	40.0	33.3	26.7
Regular PD	13.0	21.7	65.2
	Goal Post-test		
Option A	43.8%	31.3%	25.0%
Option B	50.0	37.5	12.5
Regular PD	33.3	33.3	33.3

of both options which is required for all students. The nondevelopmental PD course, however, is elective. Because of the nature of the course,

more students with personal as opposed to academic and career goals may choose to enroll in the course.

The type of goal students have on entering college also was not found to be significantly correlated to measures of success or ability. For example, type of student goal had no relationship to a student's reading score. Those with personal goals did not read any better or worse than students with academic goals. (Table 35) The reading scores for students with career goals, however, indicate that this type of student may need more reading development than other students. Less than 15 percent of this group read above the ninth grade level.

Table 35: Comparison of Student Goals with Reading Scores

	Nelson-Denny Total			
Goals	0 - 7.0	7.1 - 9.0	9.1 - 11.5	11.6+
Academic	31.6%	26.3%	21.1%	21.1%
Career	28.6	57.1	7.1	7.1
Personal	33.3	22.2	11.2	33.3

Chi Square Not sig.

Significant relationships also were not found between goals and self assessment scores. The raw data, however, showed that over 50 percent of students with higher self assessments had academic goals with less than 25 percent having personal goals. Over 75 percent of students with lower self assessments had personal goals. (Table 36)

Table 36: Comparison of Student Goals with Self Assessments

	Self Assessment	
Goals	46 or less	47 or more
Academic	7	8
Career	7	4
Personal	10	3

Statistically, there were no differences among students with different goals in attrition rates, course completion ratios, or numerical achievement score averages (NASA). The raw data showed lower NASA scores overall for students with career goals, but the difference was not statistically significant. Even though statistical differences were not computed, skill levels of students with career orientations perhaps should be considered.

Students in both groups tended to make changes in their goals after one semester. Goals indicated in the pretest taken during the assessment period were not found to be related to goals selected after one semester. (Tables 34 and 37) However, almost 70 percent of students who originally

Table 37: Comparison of Pre- and Post-test Goals of PD Students

	Post-test		
Pretest	Academic	Career	Personal
Academic	8 (67.7)	3 (25.0)	1 (8.3)
Career	1 (14.3)	4 (57.1)	2 (28.6)
Personal	5 (33.3)	4 (26.7)	6 (40.0)

had academic goals maintained that direction; a little less than 60 percent maintained a career direction; only 40 percent still had personal reasons for attending college after one semester. Much of the change from personal to other goals appeared to come from the nondevelopmental PD students. At the beginning of the fall term, 65 percent of the group had personal goals for attending college. However, by the end of the semester that percentage had dropped to 33 percent.

CONCLUSIONS

Overall, the use of special options in developmental education at Dundalk appears to have met needs of students with low assessment scores. The college seems to have found a way to work with students who come with poor reading backgrounds, unrealistic expectations, and lack of self confidence. The college, through a program of individual attention and carefully constructed courseloads, managed to retain almost 70 percent of the group of students with the lowest assessment scores. This was comparable to the return rate for nondevelopmental students.

The assessment instruments and placement procedures also seem to point most students in the appropriate direction. For the most part, the different components seem to correlate student ability and course level, although certain adjustments might further improve the assessment system.

The discussion below will describe these two areas (Options and Assessments) more fully. Recommendations coming from the discussion will then be summarized.

Options

Success of students in Options A/B appeared to meet or exceed most expectations of the college. Although students indicated in the placement survey that they expected to complete a higher proportion of their coursework, the high return rate of the Option A students suggests that they did not become discouraged with low course completion rates.

However, Option B students had the lowest return rates of any of the groups of students, less than 25 percent. The main difference between the programs of the two options was an additional six hours of coursework. The load appears to have discouraged many of the students in this option. The changes instituted in Spring 1980, when the two options were combined, appears to have made the necessary adjustments to lessen this problem.

The main change in the program was the deletion of math. Since only one of the Option B students completed any math, this appears to have been a good way to lessen the course load. Data from the math control group also suggests that students need a grasp of basic reading and comprehension skills before tackling math. While most students in the control math group met with some success, their average reading scores were consistently above the 11.0 grade level. Students in Options A/B would probably do better to delay math courses until other basic skill levels are increased.

It will be important for the college to continue to meet the diverse goals of its developmental students, especially if the number of low skilled students increases. The likelihood of students from Options A/B ever receiving Associate degrees or certificates is not high. That does not decrease the value of higher education for these students. If other of the goals for developmental education are met, then progress has been made and success achieved. In designing programs for these students, the college should not be overly concerned about "wasting" students' time in courses that may not count toward a degree.

The college, however, must be sensitive to the type of student likely to be in developmental education. More older students with developmental needs are being attracted to the college, for example. Also, the developmental group is likely to have a higher percentage of minority students than the nondevelopmental group.

The major weakness in the establishment of options for developmental students is the lack of follow-up. For example, the average reading score after one semester for Option A/B students was 7.8, compared to an entry average of 7.1. This would indicate that these students still need careful supervision and structured course selection.

Assessments

The majority of students and instructors in both Options A/B and C agreed with placement decisions derived from assessment scores. This is perhaps the best indicator that the instruments used are adequate. Many of the tests were also significantly related to different success measures. (See Questions 1, 2 and 4) However, the data did indicate that several changes could be made to simplify the process without decreasing its effectiveness.

One of the most important scores seems to be the Nelson-Denny reading test. It was shown to be correlated to most academic success measures. The ability to read and comprehend material well is logically a precursor to academic success. The reading score also seems to be a good indicator for a student's need for developmental English. For these reasons, the college should consider giving the Nelson-Denny to first time students at the beginning of the assessment process before any other test. If students score below the cutoff for Option A/B, they would be recommended to enter the optional English/Reading/PD sections. No other tests would be necessary unless requested by the student. Students scoring above the cutoff point would then take the math placement test. The English writing assessment might not be necessary, depending on the reading level of the student.

If the college feels that information about a student's self concept would be useful in working with that student, the Self Assessment Checklist could become a permanent part of the assessment process. The Checklist appears to be as effective as nationally normed tests, but takes only minutes for the student to complete and to be scored. The Checklist is

probably a more useful tool for developmental instructors, but there could be benefits from having all students fill out the form.

One important factor that the results of this study underscore is the inability of any set of tests to predict perfectly the best placement for every student. The college should retain enough flexibility in the assessment process to allow students who strongly disagree with placement recommendations to select their own program. This includes not only students who do not enroll in one of the developmental options, but also students who prefer to take courses that seem on the surface to be below their ability level. Qualitative factors such as motivation and self confidence play such an important part in the learning process, that quantitative assessments are not always correct.

Recommendations

The following recommendations are concerned with the overall developmental options and assessment process at Dundalk. Throughout the result section of this report, observations and suggestions have been made. Although many of these points have not been included in this section, they are no less important.

It is recommended that the college:

-Continue to offer the Option A/B developmental program for students with low assessment scores;

-Keep the maximum courseload of Option A/B at nine hours;

-Delete math from initial courseloads of Option A/B students;

-Continue to offer programs to meet diverse goals of developmental students, both academic and affective;

-Continue to design both credit and noncredit (continuing education) courses to meet the needs of students not pursuing academic degrees and certificates;

-Be sensitive to the differences in age and race of developmental students as opposed to nondevelopmental students;

-Establish a follow-up program for Option A/B students returning after one semester, including suggested courseloads and regular counseling;

-Continue skills assessments for all first-time students;

-Use the Nelson-Denny (or Nelson) reading test as the primary indicator to place students in the Option A/B developmental program, in developmental English, in developmental reading, and to determine if it is appropriate to administer the math placement test;

-Discourage students with low reading scores from attempting math until increasing basic skills in reading and comprehension;

-Add the Self Assessment Checklist to the assessment process to provide information about student self concept;

-Maintain flexibility in the assessment procedures to allow for individual differences.

References

1. Roueche, John E. and Snow, Jerry J., Overcoming Learning Problems. San Francisco: Jassey-Bass, Inc., 1977.

2. Linthicum, Dorothy S., Statewide Assessment of Developmental/ Remedial Education at Maryland Community Colleges. Annapolis: Maryland State Board for Community Colleges, 1979.

DUNDALK COMMUNITY COLLEGE
DEVELOPMENTAL EDUCATION
RESEARCH REPORT

ADDENDUM

DOROTHY S. LINTHICUM
CONSULTANT
JULY 1981

ADDENDUM

To better understand the developmental education program at Dundalk Community College, success of students in the developmental and nondevelopmental control groups was examined for an additional year. In most cases, the original analysis and recommendations were not affected by the new data. The new information, however, is useful in understanding patterns of developmental student behavior.

The new data only reflects traditional success measures easily obtained from student records. These include 1) the number of semesters a student attended Dundalk, 2) semester and cumulative grade point averages, 3) and the ratio of hours completed to hours attempted. In this section, research questions listed on page 6 which were affected by the 1980-81 data (numbers 1, 2, 5, 6 and 7) will be discussed only in light of the new information. A new question also has been added to compare the success of students entering mid-year with those entering in the Fall.

* * * * * * * * * * * * *

Question 1: How effective are the placement tools used at Dundalk Community College?

Two variables, the total Nelson-Denny (or Nelson) score and the Self Assessment, were compared with three success measures: cumulative grade point average (GPA), attrition (number of semesters attending), and the course completion ratio. Comparisons were made by student type, including Option A/B, Option C, and nondevelopmental.

Significant relationships between Nelson-Denny scores and all three success measures were found for nondevelopmental students. (GPAs with zero value were not included in any of the comparisons.) A definite correlation

between Nelson-Denny scores and cumulative GPAs was also found for Option C students. Students in both groups who scored higher on the Nelson-Denny tended to have higher success scores. Although there was a slight tendency for Option A/B students with higher Nelson scores to earn higher GPAs and complete more courses, no statistically significant correlations were found between Nelson scores and success measures of Option A/B students.

A positive correlation was also found between GPAs and Self Assessment scores of nondevelopmental students (significance at .05). No correlation was established between course completion ratios or attrition and Self Assessments of these same students, although a slightly negative indication between attrition and Self Assessment was noted (significant at .10). No correlation between Self Assessment scores and success measures were found in either the Option C or Option A/B student groups.

* * * * * * * * * * * * *

Question 2: Which assessment tools were the most predictive?

Over a two year period, the Nelson-Denny appears to be the most predictive assessment tool, especially for traditional, nondevelopmental students. However, none of the tools were particularly strong in predicting the success of students with severe developmental needs. This does not mean the reading scores are not useful in placing students. The Nelson-Denny (or Nelson) is still the best screening mechanism for determining basic skill levels of students (See revised Table 10 in Question 5 below). Although reading scores did not predict success within developmental groups, the scores were important in placing students in the correct Option. Significant differences in performance levels among Option A/B, Option C and nondevelopmental students were found in every success measure. Reading scores, the main criterion in student assessment, proved to be the best tool for placing students in the appropriate Options.

Question 5: How successful were students who accepted placement recommendations?

Comparisons of appropriate academic characteristics have been revised to include data from the 1980-81 academic term.

Academic Characteristics

Academic characteristics affected by the new data include attrition and course completion ratios. Comparisons are also made among the different student groups in number of hours earned over the two year period. This information should be useful not only in planning developmental programs, but also in counseling developmental students, especially those with unrealistic expectations.

Table 10 Revised: Academic Characteristics of Developmental and Non-developmental Students*

D. Number of semesters enrolled at DCC

	1 semester		2 semesters		3 semesters		4 semesters	
	#	%	#	%	#	%	#	%
Fall 79								
Option A	4	25	8	50	3	18.7	1	6.3
Option B	12	70.6	4	23.5	-	0	1	5.9
Option C	27	39.1	23	33.3	6	8.7	13	18.8
Nondevelop-mental	13	24.5	12	22.6	8	15.1	20	37.7
Spring 80								
Option A/B	12	60.0	5	25.0	3	15.0	----	
Option C	13	50.0	2	7.7	11	42.3	----	

E. Course Completion Ratios (Fall 79 & Spring 80)

	0 - 24%		25 - 89%		90 - 100%	
	#	%	#	%	#	%
Option A	17	47.2	16	44.4	3	8.3
Option B	11	62.5	6	37.5	-	0
Option C	33	34.4	42	43.7	21	21.9
Nondevelop-mental	8	15.1	18	34.0	27	50.9

F. Number of Hours Completed

	0		1-6		7-24		25-60	
	#	%	#	%	#	%	#	%
Fall 79								
Option A	5	33.3	8	53.3	2	13.3	0	0
Option B	9	56.3	5	31.2	1	16.3	1	16.3
Option C	15	20.8	22	30.6	28	38.9	7	9.7
Nondevelop-mental	7	13.2	10	18.9	11	20.7	25	47.2
Spring 80								
Option A/B	8	42.1	8	42.1	3	15.8	0	0
Option C	8	33.3	4	16.7	10	41.7	2	8.3

*Data collected for only 4 semesters.

The gap between Option A/B students and other students is significant. Well over a third of the A/B students did not successfully complete a course, and less than 15 per cent completed seven or more hours, even though 15 per cent attended college at least three semesters and almost half attended at least two semesters. Forty-four per cent of the A/B students did not successfully complete any coursework. (Developmental courses are included in the totals.) This data would support the new placement procedures which recognize the likelihood that students with reading deficiencies need preliminary skills before attempting even the basic developmental courses.

Success Comparisons

Comparisons of developmental course completions also illustrate differences between students with severe and more normal developmental needs. The tables below show the number of times students enrolled in the developmental reading and English course and whether or not they successfully completed required coursework.

Addendum Table 1: Comparisons of Course Enrollment and Completion by Type of Student

A. Option A/B Reading

# times enrolled	did not complete course	successfully completed course
1	34	7
2	8	4
3	-	-

B. Option A/B English

# times enrolled	did not complete course	successfully completed course
1	33	6
2	4	2
3	-	-

C. Option C Reading

# times enrolled	did not complete course	successfully completed course
1	21	19
2	3	4
3	2	-

D. Option C English

# times enrolled	did not complete course	successfully completed course
1	22	24
2	1	3
3	-	1

Only 20 per cent of the Option A/B students taking Reading were able to complete the requirements, and half of those students found it necessary to repeat the course. About 18 per cent of Option A/B students also completed English. Almost half of the Option C students in Reading were able to complete requirements. About 55 per cent of the Option C students in English also successfully completed the course. The major difference between students in the two Options was the number of those able to complete course requirements in one semester. These data show that students with very low assessment scores should not expect an initial high rate of course completion.

It is also important to note, however, that while the average Option A/B student failed to complete courses, some were very successful. The assessment and placement procedures should continue to be flexible enough to take into account nonacademic behavioral factors which affect student success.

* * * * * * * * * * * * *

Question 6: How important are affective skills in achieving academic success?

In Question 1, the correlation of Self Assessment scores with success measures was discussed. Statistics indicated the higher the Self Assessments of nondevelopmental students, the greater the GPA. However, those with higher Self Assessments also tended to stay in college fewer semesters. No significant correlations between Self Assessments and success measures were found in either the Option A/B or C groups. Correlations between Affective Measurement Rates (AMR) and success measures also were not detected. This could be due to the lack of distribution of AMR scores. The new data did not shed any new light on this issue, although a revised AMR score sheet was developed for later use.

* * * * * * * * * * * * * *

Question 7: How successful were students who did not take placement recommendations for Options A and B?

The new data were used primarily to update academic characteristics of students rejecting placement recommendations to allow better comparisons.

Table 33 Revised: Academic Characteristics of Students Rejecting Option A/B Placement Recommendations

	#	%
Course Completion Ratio		
0 - 24%	8	47.1
25 - 89%	8	47.1
90 - 100%	1	5.9
Cumulative GPA		
0	9	52.9
.01 - 2.99	5	29.4
3.0 - 4.0	3	17.6
Attrition		
attended 1 semester	7	41.2
attended 2 semesters	7	41.2
attended 3 semesters	3	17.6
attended 4 semesters	0	0

Table 33 (cont'd.)

	#	%
# hours completed		
0	4	23.5
1 - 6	7	41.2
7 - 24	5	29.4
25 - 60	1	5.9

For the most part, students rejecting Option A/B placement recommendations did as well as, if not better, than students in Options A/B. Overall, they were able to complete more course hours and stayed in school as long as their counterparts in Options A/B. The limitations listed in the body of the report relating to sample size are still applicable to this analysis. However, these results provide additional support for maintaining flexibility in the assessment of students.

* * * * * * * * * * * *

Question 9: Are students who enter college mid-year as successful as those entering in the fall?

There is no indication that students entering college mid-year meet with less success than those entering at the beginning of the academic year. (See Question 5, Table 10 Revised.) More students, however, in both Option A/B and Option C entering mid-year failed to return to college after one semester. The summer vacation and difficulty of follow-up probably explains this difference, although the mid-year students did as well in the other success measures as other students. Attrition problems with mid-year developmental students might be diminished with increased counseling and follow-up during the Fall preregistration period held each Spring.

* * * * * * * * * * * *

CONCLUSIONS

The new data seem to support the Conclusions reached earlier and changes made by the college in developmental education since the original report was issued. Two recommendations, the institution of a follow-up program and the maintenance of flexibility in assessment procedures, received additional support from the new data. Dundalk Community College has shown its willingness to deal with the increasing developmental needs of its students by recognizing the complexity of basic skill levels.

APPENDIX

A. Policies and Procedures for Developmental Education at Dundalk Community College

B. Surveys and Forms Used in the Developmental Education Research Project

C. Description of Computer Programming Designed for the Dundalk Community College Developmental Education Research Project

POLICIES AND PROCEDURES FOR DEVELOPMENTAL EDUCATION
AT DUNDALK COMMUNITY COLLEGE
Approved May, 1979

The purpose of this statement is to identify approved policies and procedures regarding Developmental Education issues at Dundalk Community College. They are based on previously documented data supporting the Developmental Education emphasis at the College (i.e. philosophy, rationale, needs, assessment data, faculty feedback, attrition, academic progress) and more recent data (i.e. Developmental Education 100 project, follow-up studies related to Developmental Education, professional literature).

These policies and procedures blend with existing philosophies and procedures as much as possible, yet offer a more structured, systematic and sequential approach to meaningful educational alternatives for our student body.

ITEM NO. 1
GOALS STATEMENT

The following goal statement reflects the commitment of the college to a comprehensive approach to Developmental Education. Developmental Education activities will be designed and provided to assist students:

a. Develop and/or review basic academic skills necessary for continued academic success (i.e. Reading, Writing, Math and Study Skills.)

b. Develop and/or review prerequisite skills related to specific disciplines (i.e. Business, Social Sciences, Natural Sciences).

c. Develop and/or review basic life management skills necessary for continued academic success (i.e. goal setting, time management, self exploration, decision making).

d. Develop increased self confidence in academic activities.

e. Determine realistic and appropriate life goals (i.e. career, educational).

f. Develop life skills that are useful in getting along in the community beyond the college experience.

ITEM NO. 2
ASSESSMENT

Assessment procedures will include Reading, Writing, Math and an Attitudinal Survey (self-assessment-to be developed) and a screening criteria checklist (see attached).

ITEM NO. 3
ASSESSMENT

All new students will be required to complete assessment before their initial registration at the college. Waivers may be granted upon request for the following:

a. Transfer students satisfactorily completing 12 or more college credits with an overall 2.0 grade point average before attending Dundalk Community College. An official transcript will be required.

b. Students taking 5 credits or fewer.

c. Additional waivers may be granted at the discretion of the college.

ITEM NO. 4
ASSESSMENT

Any student, full-time or part-time, flagged for insufficient academic progress shall be required to complete assessment before registering for another academic session if assessment has not already been completed.

ITEM NO. 5
ASSESSMENT

Students with a Nelson Denny reading test comprehension score of -7.0 will be required to complete further assessment of reading skills before registering.

ITEM NO. 6
PROGRAM PLANNING

Program Planning will be required of all students new to Dundalk Community College. This may be done before registration (an initialed program planning sheet) or at registration (signature on registration card). Program Planning at this point will be done with a member of the Counseling Staff.

ITEM NO. 7
PROGRAM PLANNING

The screening criteria checklist will be considered in Program Planning recommendations by Counseling personnel.

ITEM NO. 8
INSTRUCTION

All 100 level courses will be offered for credit. Only students meeting exit level skills designed for Option C courses will be granted credit.

ITEM NO. 9
INSTRUCTION

The following format will be used in designing instruction for Developmental Education Options.

	Criteria for Recommendation	Instructional Options
LEVEL 1	ND Comp - 7.0 to 7.4 Future Assessment Data Math - Very low Writing - Very low Self Assessment - Very low DE Screening checklist-Counseling recommendation	Option A Read 100 A 3 credits PD 100 A 3 credits Individual tutoring/counseling 8 credit equivalent Student registers for entire option
LEVEL 2	ND Comp 7.5 - 8.5 Math - Low Writing - Low Self Assessment - Low DE Screening checklist-Counseling recommendation	Option B Read 100 B 3 credits PD 100 B 3 credits Eng 100 B 3 credits Math 100 B 3 credits Individual tutoring/counseling 14 credit equivalent Student registers for entire option
LEVEL 3	ND Comp 8.6 - 10.0 Math - below 101 level Writing - below 101 level Self Assessment - average DE Screening checklist-Counseling recommendation	Option C Read 100 C 3 credits PD 101 2 credits Eng 100 C 3 credits RDSK 100 C 1 credit Bus 100 C 3 credits Math 100 C 3 credits (Mods 2,3,4) Courses offered independently Student registers for recommended courses

ITEM NO. 10
INSTRUCTION

Students will be strongly encouraged to register for the appropriate options based on assessment and program planning. Students choosing not to accept this recommendation will be permitted to register for courses of their choice as allowed by stated prerequisites.

ITEM NO. 11
INSTRUCTION

The necessary skills for each Developmental Education course will be developed through course content focusing on career, academic and/or personal development.

ITEM NO. 12
FOLLOW-UP/EVALUATION/
RESEARCH

A design will be developed to follow the academic progress of students identified by category through assessment data (Level 1, Level 2, Level 3) to determine:

1. courses attempted, courses completed
2. credits attempted, credits completed
3. attendance patterns (class sessions attending, class sessions missed)
4. attrition (drop out/discontinuation during a given semester)
5. persistence (number and sequence of semesters attended at Dundalk Community College)

ITEM NO. 13
FOLLOW-UP/EVALUATION/
RESEARCH

A design will be developed to follow-up the activities of students identified by category through assessment data (Level 1, Level 2, Level 3) to determine:

1. continued education
2. employment
3. other activity subsequent to course work at Dundalk Community College

ITEM NO. 14
FOLLOW-UP/EVALUATION/
RESEARCH

A January, 1980 meeting will be planned for all personnel involved in Developmental Education activities during Fall 1979 for the purpose of evaluating the Fall program and making appropriate recommendations for future Developmental Education activities.

Items 15 through 19 are administrative issues. They will be considered by the Dean and Division Chairpersons in making decisions related to Developmental Education.

RECOMMENDATION NO. 15
ADMINISTRATIVE

It is recommended that a person be designated Coordinator of Developmental Education. This person would coordinate all phases of Developmental Education activity (personnel, scheduling, budget, grants, follow-up).

RECOMMENDATION NO. 16
ADMINISTRATIVE

It is recommended that the faculty teaching in Options A and B, 4 credit hours of pay be offered for a 3 credit course. The extra credit hour of pay would compensate for an additional 15 hours of team teaching activity beyond the time required for the content course assigned. Coordinated planning time is considered as part of the teaching load as are office hours for individual assistance (counseling and tutoring).

RECOMMENDATION NO. 17
ADMINISTRATIVE

It is recommended that Options A, B and C be provided Fall 1979 and Spring 1980 and scheduled for both day and evening. Specific activities and procedures be developed to facilitate the appropriate selection of courses upon completion of Options A and B.

RECOMMENDATION NO. 18
ADMINISTRATIVE

It is recommended that class size for Options A and B be limited to 15. Option C classes will continue with present enrollment limits.

RECOMMENDATION NO. 19
ADMINISTRATIVE

It is recommended that a Developmental Education Committee be established with the Coordinator of Developmental Education serving as Chairperson with Committee membership being collegewide. The purpose of the Committee would be to deal with issues related to all aspects of Developmental Education.

SELF ASSESSMENT CHECKLIST
D.C.C.

NAME _____

SEMESTER _____

YEAR _____

Directions: All students new to Dundalk Community College are asked to complete the Self Assessment Checklist. Your responses will be helpful in planning your educational program at the college. Circle the answer that best describes your opinion about yourself.

1.	When compared to other college students, I think my Reading skills are	ABOVE AVERAGE	AVERAGE	BELOW AVERAGE
2.	When compared to other college students, I think my writing skills are	ABOVE AVERAGE	AVERAGE	BELOW AVERAGE
3.	When compared to other college students, I think my Math skills are	ABOVE AVERAGE	AVERAGE	BELOW AVERAGE
4.	When compared to other college students, I think my study habits are	ABOVE AVERAGE	AVERAGE	BELOW AVERAGE
5.	My grades in school before coming to college were	ABOVE AVERAGE	AVERAGE	BELOW AVERAGE
6.	I have a clear career goal right now.	YES	UNCERTAIN	NO
7.	I have a clear educational goal right now.	YES	UNCERTAIN	NO
8.	I am willing to work longer and harder than others in order to do well in school.	YES	UNCERTAIN	NO
9.	I get "up tight" when I have to do an assignment or take a test.	YES	UNCERTAIN	NO
10.	College is the right place for me now.	YES	UNCERTAIN	NO
11.	If I get discouraged with college, I may want to quit.	YES	UNCERTAIN	NO
12.	School is a very important thing to me right now.	YES	UNCERTAIN	NO
13.	I know what I can and cannot do when it comes to school work.	YES	UNCERTAINS	NO
14.	I would rather work and make money than go to school.	YES	UNCERTAIN	NO
15.	I feel I am at fault when I am not successful in school.	YES	UNCERTAIN	NO
16.	I feel good about myself as a college student	YES	UNCERTAIN	NO
17.	I will be able to attend classes regularly and be on time.	YES	UNCERTAIN	NO
18.	I will be able to have school work done on time.	YES	UNCERTAIN	NO
19.	I will be able to get along with my teachers	YES	UNCERTAIN	NO

20. My reasons for coming to college include: (You may check more than one)

( ) please my parents
( ) get a job
( ) financial aid
( ) other _____
( ) be a better person
( ) nothing better to do
( ) fun, athletics, social life

DCC Form No. 193 - 11/79

IMMEDIATE STUDENT GOALS AT DCC

Listed below are some goals that students work toward. Check all items that apply to you.

___ 1. Develop new skills so I can get a better job than I now have.

___ 2. Prepare for transfer to another college.

___ 3. Try college to see if I can make it.

___ 4. Try college to see if I like it.

___ 5. Prepare for a G.E.D.

___ 6. Earn college credits.

___ 7. Improve skills in reading/writing/math.

___ 8. Learn skills so I can get a job as soon as possible. Which kind? _____

___ 9. Learn skills so I can get a good job in the future (long-range).

___ 10. Earn a certificate in a certain field.

___ 11. Earn an Associate of Arts Degree. In what area? _____

___ 12. Study a subject of interest.

___ 13. Decide what to do with my life.

___ 14. Feel better about myself as a person.

___ 15. Try something new and different.

___ 16. Meet new people.

___ 17. Be with my friends.

___ 18. Participate in athletics.

___ 19. Other reasons I am here include:

a) _____

b) _____

c) _____

(over)

DCC Form No. 227 - 6/80

NAME: _____

IMMEDIATE STUDENT GOALS AT DCC

Listed below are some goals that students work toward. Check all items that apply to you.

___ 1. Develop new skills so I can get a better job than I now have.

___ 2. Prepare for transfer to another college.

___ 3. Try college to see if I can make it.

___ 4. Try college to see if I like it.

___ 5. Prepare for a G.E.D.

___ 6. Earn college credits.

___ 7. Improve skills in reading/writing/math.

___ 8. Learn skills so I can get a job as soon as possible. Which kind? _____

___ 9. Learn skills so I can get a good job in the future (long-range).

___ 10. Earn a certificate in a certain field.

___ 11. Earn an Associate of Arts degree. In what area? _____

___ 12. Study a subject of interest.

___ 13. Decide what to do with my life.

___ 14. Feel better about myself as a person.

___ 15. Try something new and different.

___ 16. Meet new people.

___ 17. Be with my friends.

___ 18. Participate in athletics.

___ 19. Other reasons I am here include:

a) _____

b) _____

c) _____

EVALUATION OF COURSE SELECTION/PLACEMENT

Student's Form

Name _____ Course & Section _____

Check the best answer on each of the following items.

This course is

_____ too difficult _____ about right _____ too easy

The amount of effort required for this course is

_____ too much _____ about right _____ too easy

I feel this course (will, will not) help me with other courses._____

I feel that if I continue working at my present level, I (will, will not) pass the course. _____

I (plan, do not plan) to take more courses in the Spring semester._____

I have a (high, low) desire to attend this course. _____

I feel that I (could, could not) have handled a more difficult course._____

Appendix B-4

EVALUATION OF COURSE SELECTION/PLACEMENT

Instructor's Form

Rate _____ in your section of _____, Fall, 1979 on the following items.

1. Academic ability:

_____ too high for this group	_____ about right	_____ too low for this group

2. Motivation to succeed:

_____ high	_____ average	_____ low

3. The amount of effort the student is putting forth is:

_____ high	_____ average	_____ low

4. It is my perception that the student (agrees, disagrees) with his placement. _____

5. If the student continues at his present level of effort, he (will, will not) complete the objectives of this group. _____

AFFECTIVE MEASUREMENT

Student: _____ Spring 1980

Course: _____ Instructor: _____

Affective Measure	Yes	No	N/A	Comment
GOAL SETTING				
Prepares adequately for class				
Completes assignments				
TIME MANAGEMENT				
Comes to class on time				
Turns in assignments on time				
Completes exams in time allotted				
MOTIVATION				
Works on own initiative				
Seeks out help				
Is attentive during class				
SELF CONFIDENCE				
Participates in class discussions				
Contributes new ideas				
Raises questions when confused				
DECISION MAKING				
Uses initiative when given a choice of assignments				
SELF EXPLORATION				
Listens to others with opposite views				
Accepts criticism				

NOWICKI-STRICKLAND INTERNAL-EXTERNAL TEST (OPINION SURVEY)

STERLING SWIFT publishing company
p o box 188
manchaca, texas 78652

OPINION SURVEY

INSTRUCTIONS:

Below are a number of questions about various topics. They have been collected from different groups of people and represent a variety of opinions. There are no right or wrong answers to this questionnaire; we are only interested in your opinions on these questions. Please circle "yes" or "no" for each question below.

1.	Do you believe that most problems will solve themselves if you just don't fool with them?	YES	NO
2.	Do you believe that you can stop yourself from catching a cold?	YES	NO
3.	Are some people just born lucky?	YES	NO
4.	Most of the time do you feel that getting good grades meant a great deal to you?	YES	NO
5.	Are you often blamed for things that just aren't your fault?	YES	NO
6.	Do you believe that if somebody studies hard enough he or she can pass any subject?	YES	NO
7.	Do you feel that most of the time it doesn't pay to try hard because things never turn out right anyway?	YES	NO
8.	Do you feel that if things start out well in the morning that it's going to be a good day no matter what you do?	YES	NO
9.	Do you feel that most of the time parents listen to what their children have to say?	YES	NO
10.	Do you believe that wishing can make good things happen?	YES	NO
11.	When you get punished does it usually seem it's for no good reason at all?	YES	NO
12.	Most of the time do you find it hard to change a friend's (mind) opinion?	YES	NO
13.	Do you think that cheering more than luck helps a team to win?	YES	NO
14.	Did you feel that it was nearly impossible to change your parent's mind about anything?	YES	NO

15. Do you believe that parents should allow children to make most of their own decisions? YES NO

16. Do you feel that when you do something wrong there's very little you can do to make it right? YES NO

17. Do you believe that most people are just born good at sports? YES NO

18. Are most of the other people your age stronger than you are? YES NO

19. Do you feel that one of the best ways to handle most problems is just not to think about them? YES NO

20. Do you feel that you have a lot of choice in deciding who your friends are? YES NO

21. If you find a four leaf clover, do you believe that it might bring you good luck? YES NO

22. Did you often feel that whether or not you did your homework had much to do with what kinds of grades you got? YES NO

23. Do you feel that when a person your age is angry at you, there's little you can do to stop him or her? YES NO

24. Have you ever had a good luck charm? YES NO

25. Do you believe that whether or not people like you depends on how you act? YES NO

26. Did your parents usually help you if you asked them to? YES NO

27. Have you felt that when people were angry with you it was usually for no reason at all? YES NO

28. Most of the time, do you feel that you can change what might happen tomorrow by what you do today? YES NO

29. Do you believe that when bad things are going to happen they just are going to happen no matter what you try to do to stop them? YES NO

30. Do you think that people can get their own way if they just keep trying? YES NO

31. Most of the time do you find it useless to try to get your own way at home? YES NO

32. Do you feel that when good things happen they happen because of hard work? YES NO

33. Do you feel that when somebody your age wants to be your enemy there's little you can do to change matters? YES NO

34. Do you feel that it's easy to get friends to do what you want them to do? YES NO

35. Do you usually feel that you have little to say about what you get to eat at home? YES NO

36. Do you feel that when someone doesn't like you there's little you can do about it? YES NO

37. Did you usually feel that it was almost useless to try in school because most other children were just plain smarter than you are? YES NO

38. Are you the kind of person who believes that planning ahead makes things turn out better? YES NO

39. Most of the time, do you feel that you have little to say about what your family decides to do? YES NO

40. Do you think it's better to be smart than to be lucky? YES NO

Dundalk Community College
Counseling Office

NOWICKI - STRICKLAND

INTERNAL-EXTERNAL ANSWER SHEET

Please circle "YES" or "NO" for each question below.

1.	YES	NO	21.	YES	NO
2.	YES	NO	22.	YES	NO
3.	YES	NO	23.	YES	NO
4.	YES	NO	24.	YES	NO
5.	YES	NO	25.	YES	NO
6.	YES	NO	26.	YES	NO
7.	YES	NO	27.	YES	NO
8.	YES	NO	28.	YES	NO
9.	YES	NO	29.	YES	NO
10.	YES	NO	30.	YES	NO
11.	YES	NO	31.	YES	NO
12.	YES	NO	32.	YES	NO
13.	YES	NO	33.	YES	NO
14.	YES	NO	34.	YES	NO
15.	YES	NO	35.	YES	NO
16.	YES	NO	36.	YES	NO
17.	YES	NO	37.	YES	NO
18.	YES	NO	38.	YES	NO
19.	YES	NO	39.	YES	NO
20.	YES	NO	40.	YES	NO

Tennessee Self-Concept Scale
Interpretation Information

ITEM	RAW SCORE	PERCENTILE	MEAN	MEANING
1. Self Criticism			35.54	High scores generally indicate a normal, healthy openness and capacity for self-criticism. Low scores indicate defensiveness.
2. Total Positive Score			345.57	Reflects the overall level of self esteem. Persons with high scores tend to like themselves, feel that they are persons of value and worth, have confidence in themselves, and act accordingly. People with low scores are doubtful about their own worth; see themselves as undesirable; often feel anxious, depressed, and unhappy; and have little faith or confidence in themselves.
3. Identity			127.10	These are the "what I am" items. Here the individual is describing his basic identity - what he is as he sees himself.
4. Self Satisfaction			103.67	This score comes from those items where the individual describes how he feels about the self he perceives. In general this score reflects the level of self satisfaction or self acceptance.
5. Behavior			115.01	This score comes from those items that say "this is what I do, or this is the way I act." Thus this score measures the individual's perception of his own behavior or the way he functions.
6. Physical Self			71.78	Here the individual is presenting his view of his body, his state of health, his physical appearance, skills, and sexuality.
7. Moral-Ethical Self			70.33	This score describes the self from a moral-ethical frame of reference--moral worth, relationship to God, feelings of being a "good" or "bad" person, and satisfaction with one's religion or lack of it.
8. Personal Self			64.55	This score reflects the individual's sense of personal worth, his feeling of adequacy as a person and his evaluation of his personality apart from his body or his relationships to others.
9. Family Self			70.83	This score reflects one's feelings of adequacy, worth, and value closest and most immediate circle of associates.
10. Social Self			68.14	This is another "self as perceived in relation to others" category but pertains to "others" in a more general way. It reflects the person's sense of adequacy and worth in his social interaction with other people in general.

NAME
DATE

PROFILE SHEET 1

Developmental Education

Option: A B C Other

NAME:_____ SEMESTER:_____

PHONE: Home_____ Work_____

ASSESSMENT DATA: READING V-_____ WRITING_____ MATH_____

C-_____

T-_____

ADDITIONAL INFORMATION:_____

Data	Pre	Post
Nelson Denny V		
C		
T		
Self Assessment		
Math Placement		
Tennessee (Total P Score)		
Nowicki Strickland		
Sentence Combining		
Affective Measurement		
Student Goals		
Hours Attempted		
Hours Completed		
Attendance %		

PROFILE SHEET 2
Level C

NAME _____ SEMESTER _____

ASSESSMENT DATA: READING V-_____ WRITING _____ MATH _____

C-_____

T-_____

ADDITIONAL INFORMATION _____

DATA	PRE	POST
Nelson Denny V		
C		
T		
Math Placement		
Sentence Combining		

Affective Measurement _____

Student Goals _____

Fall 1979		Spring 1980	
Course	Grade	Course	Grade

PROFILE SHEET 3
PD 101 Regular

NAME _____ SEMESTER _____

ASSESSMENT DATA: READING V-_____ WRITING _____ MATH _____

C-_____

T-_____

ADDITIONAL INFORMATION _____

_____

DATA	PRE	POST
Self Assessment		
Tennessee (Total P Score)		
Nowicki Strickland		

Student Goals _____

Affective Measurement _____

PROFILE SHEET 4
Non-Developmental

NAME _____ SEMESTER _____

ASSESSMENT DATA: READING V-_____ WRITING _____ MATH _____

C-_____

T-_____

ADDITIONAL INFORMATION _____

Fall 1979

Course	Grade

Spring 1980

Course	Grade

Summer 1980

Course	Grade

Fall 1980

Course	Grade

READING PROFILE SHEET

NAME _____ SEMESTER _____

TEACHER _____

		Pre	Post
Nelson Denny	V		
	C		
	T		
Attendance %			
Grade			

Please return Affective Measurement Sheet.

ENGLISH PROFILE SHEET

NAME _____ SEMESTER _____

TEACHER _____

	Pre	Post
Sentence Combining Scores		
Attendance %		
Grade		

Please return Affective Measurement Sheet.

PD PROFILE SHEET

NAME _____ SEMESTER _____

TEACHER _____

	Pre	Post
Tennessee (Total P Score)		
Nowicki Strickland		
Attendance %		
Grade		

Please return Affective Measurement Sheet, Self Assessment Checklist, and Student Goal Checklist.

MATH PROFILE SHEET

NAME _____ SEMESTER _____

TEACHER _____

	Pre	Post
Math Placement		
Attendance %		
Grade		

Please return Affective Measurement Sheet.

Appendix B: Surveys and Forms
Used in the Developmental Education
Research Project

1. Self Assessment Checklist
2. Immediate Student Goals
3. Evaluation of Course Selection/Placement - Student
4. Evaluation of Course Selection/Placement - Instructor
5. Affective Measurement Survey
6. Nowicki Strickland Internal-External Test (Opinion Survey)
7. Tennessee Self-Concept Scale
8. Profile sheets
   A. Individual student forms
   B. Subject matter instructor forms

Appendix C

DESCRIPTION OF COMPUTER PROGRAMMING DESIGNED FOR THE DUNDALK COMMUNITY COLLEGE DEVELOPMENTAL EDUCATION RESEARCH PROJECT

A computer program was written in June 1980 to analyze data collected during the Dundalk Developmental Education Research Project. Primarily, the program tracks students over a period of four semesters. Because of the length of the project, the initial run included data from only two semesters. However, the data collection sheets can be updated after another year and the program rerun for more comprehensive data. In addition, the deletion of certain variables in the future will not necessarily affect the use of the program..

Data Collection

Data described in the report was collected from student and instructor surveys and questionnaires and from the student records office. The information was first compiled on individual profile sheets, then transferred to standard, 80-column coding forms for key punching. Each student record contained two cards. The format for the coding sheet is shown at the end of this appendices.

Variable Description

Variables used in the computer program, along with the variable name and column location are described below:

Card	Column(s)	Name	Variable Description
1	1	File	The file defines groups of students with these codes: 0 - Nondevelopmental 1 - Option C - Math Control 2 - Regular PD 3 - Option C - English Control 4 - Option C - Reading Control 5 - Option B 6 - Option A (Fall 79), Option A/B (Sp 80)
1	2-3	ID	Students in each group are assigned a number from 1 to 99; this information is used only for data clarification.

Card	Column(s)	Name	Variable Description
	4	CAR	The card number indicates this is the first card the student's record.
	5-6	YOB	Year of birth (available from cumulative grade card)
	7	SEX	Male or female
	8	RACE	The following codes are used: W - White B - Black O - Oriental S - Spanish (Available from registration form.)
	9	OPTION	The type of program the student is in: A - Option A B - Option B C - Option C R - Nondevelopmental
	10-12	ENTRY	Date of entry to college: F79 - Fall 1979 S80 - Spring 1980, etc.
	13-14	HRSATT1	Hours attempted first semester
	15-16	HRSCOM1	Hours completed first semester
	17-19	GPA1	GPA first semester
	20-22	NASA1	NASA first semester (Average of all subject NAS scores)
	23-24	HRSATT2	Hours attempted second semester
	25-26	HRSCOM2	Hours completed second semester
	27-29	GPA2	GPA second semester
	30-32	NASA2	NASA second semester
	33-34	HRSATT3	Hours attempted third semester
	35-36	HRSCOM3	Hours completed third semester
	37-39	GPA3	GPA third semester
	40-41	HRSATT4	Hours attempted fourth semester
	42-43	HRSCOM4	Hours completed fourth semester
	44-46	GPA4	GPA fourth semester
	47-49	CUMGPA	Cumulative GPA
	50-52	CUMNASA	Cumulative NASA
	53-55	HSGPA	High School GPA (from student folders in records office)
	56-57	SAPRE	Self Assessment pretest score
	58-59	SAPOST	Self Assessment scores after one semester
	60-62	NDPRE	Nelson-Denny (or Nelson) total score taken at entry
	63-65	NDPOST1	Nelson-Denny total at end of first semester
	66-68	NDPOST2	Nelson-Denny total at end of second semester
	69-70	NOWSTR1	Nowicki-Strickland External-Internal Opinion Survey pretest
	71-73	TNTOTP1	Tennessee Self-Concept Scale total P score (pretest)
	74	MATHPLA	Math placement score (0 to 9)
	75-76	AMRSEM1	Average affective measurement rate for first semester (.1-3.0)

Card	Column(s)	Name	Variable Description
	77	GOAL1	Immediate student goal direction at entry into college A - Academic C - Career P - Personal
	78	GOAL2	Immediate student goal direction after one semester (A, C or P)
1	79	RECOM	Recommended option A - Option A B - Option B (All others leave blank)
	80	HSGRAD	High school graduate Y - Yes N - No G - GED (Unknown leave blank)
2	1	FILE2	Use same number as FILE on Card 1, Column 1
	2-3	ID2	Use same numbers as ID on Card 1, Columns 2-3
	4	CAR2	The card number indicates this is the second card in the students' file
	5	RDGNAS1	Reading NAS for the first semester (0 to 4)
	6	RDGNAS2	Reading NAS for the second semester
	7	RDG3	Reading NAS for the third semester
	8	PDNA1	PD NAS for the first semester
	9	PDNA2	PD NAS for the second semester
	10	ENGNAS1	English NAS the first semester
	11	ENGNAS2	English NAS the second semester
	12	ENGNAS3	English NAS the third semester
	13	MACOM1	Math units complete the first semester
	14	MAINCOM	Math units incomplete the first semester
	15	MACO2	Math units complete the second semester
	16	MACOM3	Math units complete the third semester
	17-19	ATTAVE1	Attendance average semester 1
	20-22	ATTAVE2	Attendance average semester 2
	23-25	RDGATT	Reading attendance average
	26-28	ENGATT	English attendance average
	29-31	MAATT	Math attendance average
	32-34	PDATT	PD attendance average
	35	RDGABIL	Instructor's evaluation of students' ability (Reading) H - Too high for this group M - About right L - Too low for this group
	36	RDGMOT	Instructor's evaluation of student motivation (Reading) H - High M - Average L - Low
	37	RDGSUC	Instructor's evaluation of likelihood of success in reading Y - Yes N - No

Card	Column(s)	Name	Variable Description
2	38	ENGABIL	Instructor's evaluation of student ability in English (H,M,L)
	39	ENGMOT	Instructor's evaluation of student motivation in English (H,M,L)
	40	ENGSUC	Instructor's evaluation of likelihood of success in English (Y,N)
	41	MAABIL	Instructor's evaluation of student ability in math (H,M,L)
	42	MAMOT	Instructor's evaluation of student motivation in math (H,M,L)
	43	MASUC	Instructor's evaluation of likelihood of success in math (Y,N)
	44	RDGDIF	Student perception of course difficulty in reading H - Too difficult M - About right L - Too easy
	45	RDGPASS	Student prediction of success in reading Y - Yes N - No
	46	ENGDIF	Student perception of course difficulty in English (H,M,L)
	47	ENGPASS	Student prediction of success in English (Y,N)
	48	MADIF	Student perception of course difficulty in math (H,M,L)
	49	MAPASS	Student prediction of success in math (Y,N)
	50-51	RDGAMR	Reading affective measurement rate (.1-3.0)
	52-53	EMGAMR	English affective measurement rate
	54-55	MAAMR	Math affective measurement rate
	56-57	PDAMR	PD affective measurement rate
	58-63		(Blank)
	64-65	AMRSEM2	Affective measurement average for second semester
	66-68	SENCOM1	Sentence combining score pretest (grade level)
	69-71	SENCOM2	Sentence combining score posttest
	72-74	TNTOTP2	Tennessee Total P score at end of first semester
	75-76	NOWSTR2	Nowicki-Strickland score after one semester

In addition to these original variables, other variables were created with the following values

Name		Description
AGEINT	Age intervals	1. 15-19 2. 20-29 3. 30 and over
MATHINT	Math placement score intervals	1. 0 2. 1-2 3. 3 or more

Name		Description
NDPRINT	Nelson-Denny intervals	1. Less than 7.0 2. 7.1-9.0 3. 9.1-10.0 4. 10.1-11.5 5. 11.6 or more
SAPRINT	Self assessment intervals	1. Less than 46 2. 47 or more
ATTINT1	Attendance average intervals for semester 1	1. 20 or less 2. 21-80% 3. 81-100%
ATTINT2	Attendance average intervals for semester 2	1. 49% or less 2. 50-79% 3. 80-100%
AMRINT1	Affective measurement intervals for semester 1	1. 1.9 or less 2. 2.0-2.7 3. 2.8-3.0
AMRINT2	Affective measurement intervals for semester 2	1. 2.1 or less 2. 2.2-2.8 3. 2.9-3.0
ENGAMINT	English AMR intervals	1. 2.5 or less 2. 2.6-3.0
MAAMINT	Math AMR intervals	1. 2.7 or less 2. 2.8-3.0
MATTINT	Math attendance intervals	1. 1-50% 2. 51-85% 3. 86-100%
RATTINT	Reading attendance intervals	1. 1-20% 2. 21-75% 3. 76-100%
RDGNINT	Reading NAS intervals for semester	1. 0 2. 1-3 3. 4
RDGAMINT	Reading AMR intervals	1. 1.8 or less 2. 1.9-2.7 3. 2.8-3.0
PDATTINT	PD attendance intervals	1. 1-40% 2. 41-88% 3. 89-100%
PDNINT	PD NAS intervals for semester 1 (See RDGNINT)	
PDAMINT	PD AMR intervals (See MAAMINT)	
NSPRINT	Nowicki-Strickland pretest intervals	1. 1-12 2. 13 or more
TNINT1	Tennessee Total P score intervals	1. 1-340 2. 341 or more
SADIF	The computed difference between self assessment pretest and posttest scores	
TNDIF	The computed difference between Tennessee Total P pretest and posttest scores	

Name	Description	
NSDIF	The computed difference between Nowicki-Strickland pretest and posttest scores	
HRSATT	Total number of hours attempted all four semesters	
HRSCOM	Total number of hours completed all four semesters	
PERSIS	The course completion ration is computed by dividing the total number of hours completed by the total number of hours attempted.	
PERSISIN	Course completion ratio intervals	1. 0-24% 2. 25-89% 3. 90-100%
GPAINT1	GPA intervals for the first semester	1. 0 2. 0.1-2.99 3. 3.0 or higher
ENGNINT	English NAS intervals for semester 1 (See RDGNINT)	
RETEN	Number of semesters a student is enroller (1 to 4)	

Components of Program

The first part of the computer program defines the variables and creates the new variable as listed above. New variables can be created to the program as long as the existing data is used. The program can also be adjusted to combine interval categories or recode original variables for a single task if needed.

The second part of the program is divided into groups of tasks which are associated with the original research questions. New tasks can be added within categories or separately with new task names.

The major statistics used in the program are descriptive in nature and include Pearson r correlations, crosstabulations with chi square, eta, Cramer's V and gamma, and frequencies with medians, means, standard deviations, and ranges. The data does not lend itself to higher order statistics, such as regression analysis.

The tasks are listed below with brief descriptions. The program prints the appropriate task name at the top of each page for easy reference.

Task	Description
Correlations	Several correlations can be computed to test for significant relationships between success measures and placement tools, and between locally developed instruments and nationally normed tests.
Frequencies	Frequencies are used to describe various demographic and academic characteristics of different student groups. For example, mean and median ages can be computed along with information on average test scores, and other success measures.
English Comparisons	In this section comparisons are made between student groups in grades, AMR averages and attendance. Also, comparisons between responses on the student/instructor placement survey and success are made.
Math Comparisons	Similar comparisons to those in English are made in this section. Instead of grades, number of math units completed have been used as a success indicator.
Reading Comparisons	Similar comparisons to those in English are made in this section.
PD Comparisons	Similar comparisons to those in English are made in this section. In addition, comparisons are made using self assessment, Tennessee Total P, and Nowicki pre- and posttest scores.
Low Skilled Not in Level A or B	Students who were recommended to enroll in Options A and B but chose not to are described in this section. Frequencies are used to look at the demographic and academic characteristics of these students.
Effects of Students Goals	The effects of student goals on success and their relationship to ability are described in this section. The main tool used is crosstabulation.
Follow Up Semester 2	A series of frequencies are used to describe the success of students in the second semester.

(For a better understanding of the various tasks, refer to the computer printout.)

Future Uses of the Program

In order to use the program for another project, similar research questions must be used. Basically the research questions for this study

asked if assessment tests and success were correlated, and if the new optional developmental education program was effective. Any questions dealing with comparisons of test scores and success or comparisons of groups of students would fit the mode: Some adjustments might have to be made in the variable listing, but this would not be too difficult.

The most obvious future use of the program is the testing of new developmental education procedures. It will be helpful to compare student success under methods now being used with those developed in the future. Not only can the actual programming be used, but also the student data.

The program is now written for a four semester period. Data can be added to the original data sheets and computer cards with few problems. The use of student numbers makes updating of information relatively easy.

In addition, procedures or tasks that seem irrelevant can be deleted by removing the cards from the deck. New tasks can be substituted or added at the end of the deck.

Mechanics of Running the Program

The program is now set up to use 80-column computer cards. At some point, it may be advisable to transfer the information from the cards to tape for storage. A great deal of student information has been collected which may be of use in the future to a researcher looking for comparative data.

The cards for this study were keypunched at Dundalk Community College, and the program run at Essex Community College. The Catonsville Community College computer could also be used as long as it has the Statistical Package for the Social Sciences (SPSS) on line.

The program requires the assignment of extra workspace in order to compute the additional variables. The total amount of space allocation requested was 30,000 bytes. (Allocate Transpace = 20000) For programming assistance, contact Mr. Jim Smith, Director of the Essex Computer Center.

Programming additions or changes should follow the guidelines in the SPSS handbook (second edition).

DEVELOPMENTAL EDUCATION SCREENING CRITERIA CHECKLIST

1. Nelson-Denny Reading Test - results
2. Assessment results in Math
3. Assessment results in Writing
4. Results of self assessment
5. Lack of previous academic success (non H.S. graduate, Non GED)
6. Undetermined or unrealistic career/educational goals at present
7. Inadequate study skills
8. Unaware of academic demands or how to operate in a college system
9. Poor self-image, lack of confidence
10. Inadequate interpersonal skills
11. Non-academic motivation - (financial aid, parental pressure, avoid work responsiblity)
12. Low ability, aptitude for academics
13. Obviously high degree of anxiety, uneasiness, low tolerance for frustration
14. Lacks sense of personal responsibility

COUNSELOR:_____ DATE:_____

STUDENT:_____

RECOMMENDATION: OPTIONA____OPTION B____OPTION C____OTHER_____

DECISION: OPTION A____OPTION B____OPTION C____OTHER_____

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